

**ABSTRACT OF THE DISCLOSURE**

A finishing tool rides upward and downward on the surface of a tap. A spring urges the finishing tool toward an outer end of the tap. The finishing tool is guided along a helical flute on the surface of the tap. Cutting edges on the finishing tool are ground to deburr the perimeter of a hole being tapped either during entry of the tap into the hole or during withdrawal. When the cutting edges provide deburring during withdrawal, the helix angle of the helical flute must be less than a critical helix angle to avoid jamming. When the cutting edges provide deburring during entry of the tap, the critical helix-angle limitation is eliminated.